

In the Specification

Amend the whole of Page 7, as follows:

---provides a source control bundle 360, ~~shared~~ connected in parallel with the control wire bundles 310-316 of the bridge flex circuits 210-216. The ribbon cable socket 226 is coupled via flex ~~region~~ cable 224 to a preamplifier ~~site~~ 222 and a bridge coupling region 250.

The preamplifier 222 and the coupling of the preamplifier of the differential read and write signals to the bridge flex circuits is one of the main constraints for the main flex circuit 220 and impacts many of the components of the actuator arm assembly as shown in Figure 3A.

Figure 4A shows a bridge flex circuit ~~310~~ 210 with a test strip 211 that ~~includes~~ providing a probe point for each wire of the control signal bundle 310-1 and 310-2, the read differential signal pair r0+ and r0-, and the write differential signal pair w0+ and w0-. The test strip 211 is only used during initial testing of the bridge flex circuit 210, and is removed before the coupling of the bridge flex circuit 210 with the main flex circuit 220.

The test strip probe points ~~of Figure 4A~~ for the control signal bundle 310, which includes signals 310-1 and 310-2, ~~are~~ are labeled p310-1 and p310-2, respectively.

The test strip probe points ~~of Figure 4A~~ for the read differential signal pair, ~~which~~ includes r0+ and r0-, ~~are~~ are labeled pr0+ and pr0-, respectively.

The test strip probe points ~~of Figure 4A~~ for the write differential signal pair, ~~which~~ includes w0+ and w0-, ~~are~~ are labeled pw0+ and pw0-, respectively.

The bridge flex circuit ~~310 of Figure 4A~~ 210 also provides slider contacts for a ~~slider~~ containing the read-write head for the read head differential signal pair, sr0+ and sr0-, and the write head differential signal pair, as sr0+, sr0-, sw0+, and sw0-. One skilled in the art will recognize that

the exact order of these signal contacts will vary with different implementations, and any ordering is potentially preferred as the situation varies.

The bridge flex circuit ~~310~~ 210 of Figure 4A also provides contacts for the control signal bundle to the corresponding micro-actuator as s310- 1 and s310-2. In embodiments using a one wire approach, the control signal bundle would have one wire, with only one contact.

Figure 4B shows an enlargement of the coupling site 350 of the bridge flex circuit 310 of Figures 1, 2, and 4A for the control signal bundle coupling contacts c310-1 and c310-2.

Figure 4C is the mirror image of Figure 4A, and shows the bridge flex circuit 212. The mirror bridge flex circuit is required for a second head gimbal assembly either accessing the other disk surface of a disk, or the other head gimbal assembly mounted on the same actuator arm 50.---

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---Figure 4D is ~~the~~ an enlargement of ~~the~~ coupling site 352 of ~~the~~ bridge flex circuit ~~312~~ 212, which mirrors coupling site 350 in Figure 4B. The probe points pr1+, pr1-, pw1+, pw1-, p302-2, and p302-1 are similar to the corresponding probe points of Figure 4A. The coupling site 352 is also similar, mirroring coupling site 350 of Figures 4A and 4B. The slider contacts sr1+, sr1-, wr1+ and wr1- are similar to those of Figure 4A. The control signal bundle slider contacts s312-1 and s312-2 are also similar to those of Figure 4A.

Figures 4A-4D ~~and 4B~~ show a cleavage lines 330 and 332, which ~~is the approximate place~~ are where the test strips 211 and 213 are is removed from ~~the~~ bridge flex circuits 210 and 212 after continuity testing during assembly is completed. ~~Figures 4C and 4D show the cleavage line 330,~~ which serves the same purpose.

The invention includes the flex circuit assembly of the main flex circuit 220 coupling solders up with at least two of the bridge flex circuits 210-216, as in Figures 1 and 2. The making of the a whole flex circuit assembly, ~~includes the following steps. Each of the bridge flex circuits 310 and 312, with its test strip, is probed~~ begins with probing of test strips 211 and 213 to confirm the overall connectivity of the bridge flex circuit s 210 and 212. The test strips 211 and 213 are is removed to ~~create~~ from the bridge flex circuits 310 210 and 212 by cutting at the cleavage line 330. Each of the bridge flex circuits, ~~310-316~~ 210, 212, are positioned with their respective bridge coupling site 350, 352 aligned with the bridge coupling region 250 of the main flex circuit 220. The aligned main flex circuit and bridge flex circuits are reflow soldered together to ~~create the shared coupling of the~~ finish and connect all of source control bundle 360.

The other components of attached to the main flex circuit 220 include a preamplifier 222 and a ribbon cable socket 226, as well as passive components, which may include capacitors and resistors. These other components of the main flex circuit 220 may be soldered to the main flex circuit 220 before, during, or after, the bridge flex circuits 210-216.

Making the voice coil actuator of Figure 3A includes the following steps. The flex circuit assembly of Figures 1 and 2, is assembled with the head gimbal assemblies 60-66 and the actuator arms 50-56. The head gimbal assemblies 60-66 include the micro-actuators 300-306, which are electrically coupled with the respective leads of the bridge flex circuits 210-216. This coupling shares the source control bundle 360 of the main flex circuit 220 with the microactuator control bundles 310-316 of the bridge flex circuits 210-216.

The voice coil actuator, ribbon cable 1150, and embedded disk controller printed circuit board 1000 of Figures 1-3A, are used to assemble the hard disk drive 10. The hard disk drive 10---